

**WHAT IS CLAIMED IS:**

1  
2 1. A direct current brushless motor with axial winding and radial  
3 air-gap, comprising:

4 an upper housing, made of a magnetic conducting material,  
5 having an axial hole;

6 a lower housing, made of a magnetic conducting material, having  
7 an axial hole;

8 a coil seat, being a housing made of an insulating material formed  
9 by a metallic wire functioning as an axial winding, the metallic wire having an  
10 end head used for an electric power input, the coil seat having a central hole;

11 silicon steel plates, respectively mounted on two sides of the coil  
12 seat, having a central position provided with poles extended into the central  
13 hole of the coil seat, the poles of the upper and lower silicon steel plates are  
14 arranged in a staggered manner with each other;

15 a rotor, having a rotation shaft pivotally mounted in the axial hole  
16 of the upper housing and the lower housing, the rotor having a permanent  
17 magnet, the permanent magnet located in the central hole of the coil seat, and  
18 mating with the poles of the upper and lower silicon steel plates;

19 an actuating circuit, having an electronic control member, a hall  
20 sensor, and having an electric power cord introducing electric power for  
21 actuating the rotor to rotate.

22 2. The direct current brushless motor with axial winding and radial  
23 air-gap as claimed in claim 1, wherein the upper housing and the lower housing  
24 are additionally provided with a shaft seat, the shaft seat is provided with a

1 bearing therein, the bearing allows pivotal connection of the rotation shaft of  
2 the rotor.

3 3. The direct current brushless motor with axial winding and radial  
4 air-gap as claimed in claim 1, wherein the upper housing has a periphery  
5 having a magnetic conducting ring extending toward a vertical direction.

6 4. The direct current brushless motor with axial winding and radial  
7 air-gap as claimed in claim 3, wherein the silicon steel plates located on the  
8 two sides of the coil seat are tightly combined with the magnetic conducting  
9 ring of the upper housing.

10 5. The direct current brushless motor with axial winding and radial  
11 air-gap as claimed in claim 1, wherein the coil seat has positioning posts, and  
12 the silicon steel plate is provided with positioning holes, the positioning posts  
13 pass through the positioning holes, and combine with the positioning holes.

14 6. The direct current brushless motor with axial winding and radial  
15 air-gap as claimed in claim 1, wherein the silicon steel plates located on the  
16 upper side and the lower side of the coil seat each have a periphery provided  
17 with a side wall extending toward a vertical direction of the coil seat.

18 7. The direct current brushless motor with axial winding and radial  
19 air-gap as claimed in claim 6, wherein the side walls of the silicon steel plates  
20 located on the upper side and the lower side of the coil seat abut with each  
21 other.

22 8. The direct current brushless motor with axial winding and radial  
23 air-gap as claimed in claim 1, wherein the silicon steel plate is provided with  
24 lugs protruding outward from a surface thereof.

1           9. The direct current brushless motor with axial winding and radial  
2 air-gap as claimed in claim 1, wherein the actuating circuit is mounted on a  
3 circuit board.

4           10. The direct current brushless motor with axial winding and radial  
5 air-gap as claimed in claim 9, further comprising an insulating layer, the  
6 insulating layer covering the circuit board.

7           11. The direct current brushless motor with axial winding and radial  
8 air-gap as claimed in claim 10, wherein the circuit board covered with the  
9 insulating layer is mounted between the silicon steel plate and the upper  
10 housing.

11           12. The direct current brushless motor with axial winding and radial  
12 air-gap as claimed in claim 10, wherein the circuit board covered with the  
13 insulating layer is mounted between the silicon steel plate and the lower  
14 housing.

15           13. The direct current brushless motor with axial winding and radial  
16 air-gap as claimed in claim 1, wherein the circuit board is provided with holes  
17 for combining with the positioning posts of the coil seat.